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**New regulatory mechanisms of TGF-beta receptor function.**

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**Public Summary:**

**Scientific Abstract:**

Transforming growth factor-beta (TGF-beta) regulates cell proliferation, differentiation and apoptosis, and TGF-beta-related proteins have key roles in development, tissue homeostasis and disease. Upon binding to their cell surface receptors, TGF-beta family proteins signal through Smads to induce changes in gene expression. TGF-beta-induced Smad signaling and additional non-Smad pathways have been studied extensively in an effort to understand the complex and versatile responses to TGF-beta family proteins. Recently, it has become increasingly apparent that the signaling responses are also extensively defined by regulatory mechanisms at the level of the receptors themselves. Here, we discuss recent insights into the effects of post-translational modifications, protein associations and mode of internalization on the functions of the TGF-beta receptors and their signaling responses.

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